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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/544,896	04/07/2000	Brian Mitchell Bass	RAL9-2000-0019-US1	1388

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EXAMINER	
VOLPER, THOMAS E	

ART UNIT	PAPER NUMBER
2665	

DATE MAILED: 10/24/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/544,896	BASS ET AL.	
	Examiner	Art Unit	
	Thomas Volper	2697	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-20 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-20 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 07 April 2000 is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Drawings

1. The drawings are objected to because they are hand drawn. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 2, 4, 12 and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claims 2 and 12 recite the limitation "said tree building information" in lines 1 and 2. There is insufficient antecedent basis for this limitation in the claim.

5. Claims 4 and 14 recite the limitation "the guided tree handler" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are

such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1, 3-11 and 13-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Disney et al. (US 6,289,388) in view of Adiletta et al. (US 6,606,704) and Baxter (US 5,177,679).

Regarding claims 1 and 11, Disney discloses a control system for a network processing system which includes a plurality of network processors and at least one control point unit, and wherein each control point unit is directly connected to a different network processor (see Figures 1 and 2). The control manager unit (CMU) (18b) represents a control point unit, as in the present invention. Disney fails to expressly disclose that each of the network processors has at least three pico processors, one of which is a guided cell handler, one of which is a guided table handler, and the rest of which are general data handlers. Adiletta discloses a hardware-based multithreaded processor (12) that is representative of the network processor of the present invention (col. 4, lines 20-25). This processor (12) includes a central controller (20), SRAM controller (26b) and microengines (22a-22f), which represent the guided cell handler, guided table handler, and general data handlers of the present invention (see Figure 1). Adiletta also discloses a control information path between a PCI bus (24) and the central controller on the network processor, and a data path between the PCI bus (24) and the microengines the network processor, whereby control information can be transferred and controlled independently of said data (col. 4, line 49 – col. 6, line 55). Baxter discloses a special purpose microprocessor called a picoprocessor that is a programmable logic device that executes picocode (col. 1, lines 1-42; see also Figure 1). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to implement the hardware-based multithreaded processor of Adiletta in

the architecture provided by Disney, and to use the PCI bus to form a direct connection between each multithreaded processor and CMU. It also would have been obvious to implement the central controller, SRAM controller, and microengines of Adiletta by using the picoproccesor of Baxter. One of ordinary skill in the art would have been motivated to combine the processor of Adiletta with the architecture of Disney in order to manage the upper layer protocols of the data being processed in the processor. One of ordinary skill in the art would have been motivated to use a picoprocessor to implement the aforementioned components in the processor of Adiletta in order to provide a simple device with few logic elements and data wires to perform its function.

Regarding claims 3 and 13, Adiletta discloses a communication path between the central controller and the microengines (see Figure 1).

Regarding claims 4 and 14, Adiletta discloses a communication path between the SRAM controller and the microengines of (see Figure 1).

Regarding claims 5 and 15, Adiletta discloses that the central controller can provide extra support for packet processing when the microengines pass the packets off for more detailed processing (col. 3, lines 1-8). In this manner, the central controller is functioning as a general data handler as in the present invention.

Regarding claims 6-8 and 16-18, Disney discloses a secondary network processor, represented by NIC (50), connected to a control point unit, represented by CMU (18b), through a primary network processor, represented by NP (20a) (see Figure 2). Disney fails to expressly disclose that the connection is through a guided cell handler on the primary network processor. However, as described above, Adiletta discloses a central controller (20) that represents the guided cell handler of the present invention, and this central controller is connected to a PCI bus

(24). The processor of Adiletta was combined with the architecture of Disney above, so that an implementation of the combination would result in the PCI bus of Adiletta being connected to the CMU of Disney. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to connect a secondary network processor to the CMU connected to a primary network processor via the central controller in the teaching provided by Disney et al. in view of Adiletta et al. and Baxter. One of ordinary skill in the art would have been motivated to do this because the central controller of Adiletta provides all of the general purpose computer type functions of the multithreaded processor.

Regarding claims 9 and 19, Adiletta discloses a plurality of microengines, which represent the general data handlers of the present invention (see Figure 1).

Regarding claims 10 and 20, Adiletta discloses event logic (74) inside each microengine that receives messages, including response messages, from any of the shared resources, such as SRAM (26a), the central controller (20), control and status registers and so forth (col. 7, lines 34-57).

8. Claims 2 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Disney et al. (US 6,289,388) in view of Adiletta et al. (US 6,606,704) and Baxter (US 5,177,679) as applied to claims 1, 3-11 and 13-20 above, and further in view of Boucher et al. (US 6,226,680).

Regarding claims 2 and 12, the teaching provided Disney et al. in view of Adiletta et al. and Baxter provides for using look-up tables in SRAM memory for fast access to information upon request of the central controller, but fails to expressly disclose tree building information. Boucher discloses an intelligent network interface card that uses such software processes as a B-

tree when controlling the processing of data packets. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use a tree for storing information in the SRAM and sending tree information on the control path. One of ordinary skill in the art would have been motivated to use a tree for faster, more efficient memory accesses.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Schnell (US 6,199,133) Management Communication Bus for Networking Devices

Adiletta et al. (US 6,427,196) SRAM Controller for Parallel Processor Architecture Including Address and Command Queue and Arbiter

Allen, Jr. et al. (US 6,404,752) Network Switch Using Network Processor and Methods

Chang et al. (US 6,604,136) Application Programming Interfaces and Methods Enabling a Host to Interface with a Network Processor

10. Any inquiry concerning this communication, or earlier communications from the examiner should be directed to Thomas Volper whose telephone number is 703-305-8405 and fax number is 703-746-9467. The examiner can normally be reached between 8:30am and 6:00pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu, can be reached at 703-308-6602. Any inquiry of a general nature or relating

to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4750.

Thomas E. Volper
TEV

October 16, 2003

HUY D. VU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600